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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/056,860 | 01/23/2002 | Michael Petroff | 1035/203 | 4881 |

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EXAMINER

LE, HUYEN D

ART UNIT PAPER NUMBER

2643

DATE MAILED: 06/16/2004

[Handwritten mark]

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/056,860

Applicant(s)

PETROFF ET AL.

Examiner

HUYEN D. LE

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-19, 21-26 and 28 is/are rejected.
- 7) ☒ Claim(s) 20 and 27 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 4.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference character(s) mentioned in the description: 12 and 225 on page 21. Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "220" has been used to designate both the hole in the membrane 216 and the outside edge of the base 210. Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of

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any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the magnetic oil in the driver must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

4. Claim 28 recites the limitation "the thin membrane" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-3, 5, 8, 11 and 16-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Saiki Shuji (JP 60043998).

Regarding claims 1-3, 5, 8, and 11, Shuji teaches a loudspeaker (figures 2 and 6) which comprises a back plate (13 or 16 and 23 or 26), a frame (11 or 16), a driver (14, 24) coupled to the frame, an enhancer (15), and a membrane (12, 22), wherein the membrane (12, 22) is coupled to the mouth of the enhancer (15), supported and maintained by the frame as claimed.

Regarding claims 16 and 18, Shuji shows the back plate (16, 26) which has a recess for receiving the driver (13, 14, 23, 24).

Regarding claim 17, Shuji shows the a recess that is off-center as claimed (figure 6).

7. Claims 1-3, 5, 8, 10, 11, 19 and 28 are rejected under 35 U.S.C. 102(b) as being anticipated by Rojas (U.S. 4,232,204).

Regarding claims 1-3, 5, 8, 11, Rojas teaches a loudspeaker which comprises a back plate (7, 10, 11), a frame (1), a driver (6) coupled to the frame, an enhancer (3), and a membrane (5), wherein the membrane (5) is coupled to the mouth of the enhancer (3), supported and maintained by the frame as claimed.

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Regarding claim 10, Rojas shows the small holes that are provided on the membrane at locations near the frame (see the small holes in the foam 2).

Regarding claim 19, as broadly claimed, Rojas shows the apertures in the back plate (7, 10).

Regarding claim 28, Rojas shows a hole in the membrane (5) for receiving the mouth of the enhancer (3).

8. Claims 1 and 24-26 are rejected under 35 U.S.C. 102(b) as being anticipated by Wada et al. (U.S. 4,477,699) or Goossens (U.S. patent 4,517,416).

Regarding claims 1 and 24-26, Wada or Goossens teaches a loudspeaker which comprises a back plate (1 in Wada, and 4 in Goossens), a frame (2 in Wada and 6 in Goossens), a driver (7 and 8 in Wada, 2 and 3 in Goossens) coupled to the frame, an enhancer (5, 11 in Wada and 21 in Goossens), and a membrane (4 in Wada and 23, 24, 25 in Goossens), wherein the membrane is coupled to the mouth of the enhancer, supported and maintained by the frame as claimed.

Regarding claims 24-26, Wada or Goossens shows the claim as claimed (6 in Wada and 30 in Goossens).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims 4, 6-7, 9, 12-15 and 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sacki Shuji (JP 60043998).

Regarding claim 4, Shuji does not specifically teach the thickness as claimed. However, Shuji does estimate a small thickness for the speaker.

Therefore, it would have been obvious to one skilled in the art to provide any range of thickness for the speaker of Shuji such as the thickness of less than 30 mm for a thin speaker.

Regarding claims 6-7 and 9, Shuji does not specifically disclose the material as claimed in claims 6-7. However, it is known in the art to provide the material of the diaphragm which is made of a flexible, substantially non-elastic, Kapton, polyimide or metal foil material.

Therefore, it would have been obvious to one skilled in the art to provide any material for the diaphragm (12) of Shuji such as the material which is made of a flexible, substantially non-elastic, Kapton, polyimide or metal foil material or the material which is uniformly tensioned strength of about 5 to 30 lbs of force for alternate choice depending on the desired frequency characteristics.

Regarding claim 12, Shuji does not teach the magnetic oil as claimed. However, providing the magnetic oil in the magnetic gap or driver of a magnetic circuit is very well known in the art.

Therefore, it would have been obvious to one skilled in the art to provide magnetic oil in the driver of the Shuji speaker for dampening resonance and vibrations from the diaphragm. This would provide the improved frequency characteristics.

Regarding claims 13-15, Shuji does not specifically disclose the ratios for the enhancer as claimed. However, Shuji does not restrict to any specific size for the enhancer (15).

Therefore, it would have been obvious to one skilled in the art to provide any size for the enhancer such as the diameters of the neck and the mouth as claimed in claims 13-15 for greater flexibility depending on the desired frequency characteristics.

Regarding claims 21-22, Shuji does not specifically disclose the material as claimed in claims 21-22. However, it is known in the art to provide the material of the diaphragm which is made of a paper or Kevlar material.

Therefore, it would have been obvious to one skilled in the art to provide any material for the enhancer of Shuji such as the material which is made of a paper or Kevlar material for an alternate choice depending on the desired frequency characteristics.

Regarding claim 23, Shuji does not specifically disclose a rubber type adhesive for adhering the membrane to the enhancer or the frame. However, using a rubber adhesive for connecting the parts in a loudspeaker such as the diaphragm to the frame is known in the art.

Therefore, it would have been obvious to one skilled in the art to provide any adhesive material for connecting the membrane to the frame or the enhancer of the Shuji speaker such as the rubber adhesive for an alternate choice.

11. Claims 12 and 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rojas (U.S. 4,232,204).

Regarding claim 12, Rojas does not teach the magnetic oil as claimed. However, providing the magnetic oil in the magnetic gap or driver of a magnetic circuit is very well known in the art.

Therefore, it would have been obvious to one skilled in the art to provide magnetic oil in the driver of the Roja speaker for dampening resonance and vibrations from the diaphragm. This would provide the improved frequency characteristics.

Regarding claims 21-22, Rojas does not specifically disclose the material as claimed in claims 21-22. However, it is known in the art to provide the material of the diaphragm which is made of a paper or Kevlar material.

Therefore, it would have been obvious to one skilled in the art to provide any material for the enhancer of Rojas such as the material which is made of a paper or Kevlar material for alternate choice depending on the desired frequency characteristics.

Regarding claim 23, Rojas does not specifically disclose a rubber type adhesive for adhering the membrane to the enhancer or the frame. However, using a rubber adhesive for connecting the parts in a loudspeaker such as the diaphragm to the frame is known in the art.

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Therefore, it would have been obvious to one skilled in the art to provide any adhesive material for connecting the membrane to the frame or the enhancer of the Rojas speaker such as the rubber adhesive for alternate choice.

Allowable Subject Matter

12. Claims 20 and 27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Ishigaki et al. (U.S. patent 5,586,195) teaches a body acoustic device.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to HUYEN D. LE whose telephone number is (703) 305-4844. The examiner can normally be reached on 9:30AM-6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, CURTIS KUNTZ can be reached on (703) 305-4708. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



HL
June 11, 2004



HUYEN LE
PRIMARY EXAMINER